PATENT MS150904.01/MSFTP161US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Eric J. Horvitz, et al.

Examiner: Harun M. Yimam

Serial No: 09/825,820

Art Unit: 2611

Filing Date: April 4, 2001

Title: TIME-CENTRIC TRAINING, INFERENCE AND USER INTERFACE FOR PERSONALIZED MEDIA PROGRAM GUIDES

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellants' representative submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith in connection with all fees due regarding this appeal brief. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [MSFTP161US].

09/825,820   MS150904.01/MSFTP161US

I.   **Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))**

The real party in interest in the present appeal is Microsoft Corporation, the
assignee of the present application.

II.   **Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))**

Appellants, appellants' legal representative, and/or the assignee of the present
application are not aware of any appeals or interferences which may be related to, will
directly affect, or be directly affected by or have a bearing on the Board's decision in the
pending appeal.

III.   **Status of Claims (37 C.F.R. §41.37(c)(1)(iii))**

Claims 8, 19-31, and 35-52 have been cancelled and no claims have been
withdrawn. Claims 1-7, 9-18, and 32-34 stand rejected by the Examiner. The rejection
of claims 1-7, 9-18, and 32-34 is being appealed.

IV.   **Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))**

No amendments have been entered subsequent the Final Office Action dated
August 25, 2005.

V.   **Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))**

Independent Claim 1

Independent claim 1 recites a system for ranking items in a selectable information
list received from an information delivery system, comprising: a database system that
logs selections of information viewed by a user of the information delivery system and
logs temporal history related to a plurality of time subintervals that correspond to the
viewing of the selected information; and a collaborative filtering system that employs the
logged temporal history and disparate logged temporal history from a plurality of
disparate database systems to generate a recommendation specific to the user based at
least in part on information obtained from a plurality of users related to a particular one

2

of the plurality of time subintervals. (*See e.g.,* pg. 2, ln. 28 – pg. 3, ln. 18; pg. 7, ln. 15 – pg. 17, ln. 7; *see generally* Figs. 1-4).

Independent Claim 18

Independent claim 18 recites a multimedia system that ranks programs in an electronic program guide list received from a program delivery system, comprising; a database system that logs selections of programs viewed by a user utilizing a program delivery system and logs temporal history that includes a plurality of time subintervals that correspond to the viewing of the selected programs; and a collaborative filtering system that employs the logged temporal history from the database system and different logged temporal history from a plurality of database systems associated with disparate users to produce a user specific recommendation based at least in part on information associated with a plurality of users related to a particular one of the plurality of time subintervals. (*See e.g.,* pg. 2, ln. 28 – pg. 3, ln. 18; pg. 7, ln. 15 – pg. 17, ln. 7; *see generally* Figs. 1-4).

VI.   Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))

A.   Claims 1, 2, 4, 9-18, and 32-34 stand rejected under 35 U.S.C. §102(e) as being anticipated by Maissel *et al.* (U.S. 6,637,029).

B.   Claims 3 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maissel *et al.* (U.S. 6,637,029) and Ferman *et al.* (U.S. 2002/0059584).

C.   Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maissel *et al.* (US 6,637,029) and Hopple *et al.* (US 6,519,769).

VII.   Argument (37 C.F.R. §41.37(c)(1)(vii))

A.   __Rejection of Claims 1, 2, 4, 9-18, and 32-34 Under 35 U.S.C. §102(e)__

Claims 1, 2, 4, 9-18, and 32-34 stand rejected under 35 U.S.C. §102(e) as being anticipated by Maissel *et al.* (U.S. 6,637,029). It is respectfully submitted that this

3

rejection should be reversed for at least the following reasons. Maissel *et al.* does not anticipate or suggest each and every element of the subject claims.

> For a prior art reference to anticipate, 35 U.S.C. §102 requires that *"each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (*quoting Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)) (emphasis added).

The subject claims relate to integrating considerations of temporality with collaborative filtering. In particular, independent claim 1 (and similarly independent claim 18) recites a database system that logs selections of information viewed by a user of the information delivery system and *logs temporal history related to a plurality of time subintervals* that correspond to the viewing of the selected information. Independent claim 1 (and similarly independent claim 18) further recites a collaborative filtering system that employs the *logged temporal history* and *disparate logged temporal history* from a plurality of disparate database systems to generate a *recommendation specific to the user* based at least in part on *information obtained from a plurality of users* related to a particular one of the plurality of *time subintervals*. Maissel *et al.* does not anticipate or suggest such claimed aspects.

More particularly, Maissel *et al.* fails to anticipate or suggest that a collaborative filtering system generates a *recommendation specific to the user* based at least in part on information obtained from a plurality of users as claimed. In the Advisory Action, the Examiner contends that such aspects are disclosed by Maissel *et al.* at column 19, lines 27-38, 105 in Figure 1, and column 12, lines 23-38. (*See* Advisory Action dated October 18, 2005). Appellants' representative respectfully disagrees with such contentions. In particular, Maissel *et al.* notes that real-time information regarding a proportion or percentage of the audience viewing a particular program may be computed, transmitted to subscribers, and displayed. (*See* col. 19, ll. 20-30). An alert can inform a user that a program on another channel is currently being viewed by a large portion of the audience. (*See* col. 19, ll. 31-37). However, these displays are not recommendations *specific to the*

4

user. Rather, the displayed proportions, graphs, and alerts related to percentages of users watching particular programs are *similar for all users*. Maissel *et al.* notes that the alerts related to a large portion of the audience can be similar to the alert 105 from Fig. 1, which can be based on viewing behavior. (*See* col. 19, ll. 31-33; Fig. 1). However, Maissel *et al.* does not anticipate or suggest that the information associated with these distinct types of alerts are combined. Thus, the Examiner improperly concludes that "every alert that makes a recommendation to the user is based on particular viewed behavior" and therefore "the generated recommendation is specific to the user." (*See* Advisory Action dated October 18, 2005). Instead, Maissel *et al.* notes that alerts based on viewing behavior can be provided to a user and alerts based on the general audience behavior can be provided to the user – however, Maissel *et al.* does not generate a *recommendation specific to the user* based at least in part on information obtained from a plurality of users. Accordingly, Maissel *et al.* fails to anticipate or suggest such claimed aspects.

In addition, the Examiner is reminded that the standard by which anticipation is to be measured is *strict identity* between the cited document and the invention as claimed, not mere equivalence or similarity. *See, Richardson* at 9 USPQ2d 1913, 1920. This means that in order to establish anticipation under 35 U.S.C. §102, the single document cited must not only expressly or inherently describe each and every limitation set forth in the patent claim, but also the identical invention must be shown in as complete detail as is contained in the claim. The fact that Maissel *et al.* fails to provide a recommendation specific to the user based at least in part on information obtained from a plurality of users, but rather discloses providing alerts based on viewing behavior alone and alerts based on general audience behavior alone, leads one to believe that the cited document in the final analysis does not provide an invention identical to that recited in the subject claims.

Additionally, Maissel *et al.* does not anticipate or suggest employ[ing] the *logged temporal history* and *disparate logged temporal history* from a plurality of disparate collaborative filtering systems to make a recommendation specific to the user as recited in the subject claims. Thus, temporal history associated with a user as well as temporal histories associated with disparate users are employed to make a user specific

5

recommendation. The Advisory Action contends that Maissel *et al.* discloses such aspects at column 12, lines 23-43 and notes that "the viewer preference profile comprises program characteristics of preferred programs viewed by a viewer at various time (disparate logged temporal history)." (*See* Advisory Action dated October 18, 2005). Appellants' representative avers to the contrary. Maissel *et al.* notes that the viewer preference profile can include information, obtained over a period of time, related to the various current program characteristics of programs viewed by a viewer at various times. (*See* col. 12, ll. 26-30). Thus, Maissel *et al.* relates to employing viewing history associated with a particular user. However, Maissel *et al.* is silent regarding utilizing disparate logged temporal history from a plurality of disparate collaborative filtering systems. As noted above, Maissel *et al.* describes displaying real-time audience viewing information. However, this information is not utilized to provide a user specific recommendation. Additionally, the real-time audience viewing information is not a logged temporal history; on the contrary, the real-time information is associated with currently viewed programs. (*See* col. 19, ll. 31-37). Maissel *et al.* further discloses that rating information, which can include information on general viewer popularity of a program based on ratings, can be used to modify a customization of a program guide. (*See* col. 14, ll. 38-46). However, Maissel *et al.* is silent regarding the rating information being from a plurality of disparate collaborative filtering systems as claimed. The Advisory Action incorrectly cites Maissel *et al.* at column 14, lines 38-46 to support the assertion that the rating information is from a plurality of disparate collaborative filtering systems. (*See* Advisory Action dated October 18, 2005). While Maissel *et al.* may note that rating information can be a factor used by the intelligent agent, there is no teaching or suggestion in connection with the rating information being from a plurality of disparate collaborative filtering systems. Therefore, Maissel *et al.* fails to anticipate or suggest such claimed aspects.

Moreover, Maissel *et al.* does not anticipate or suggest a database system that ... logs temporal history *related to a plurality of time subintervals* that correspond to the viewing of the selected information. It is asserted in the Advisory Action that such aspects are disclosed by Maissel *et al.* at column 12, lines 26-28 and 40-45. (*See* Advisory Action dated October 18, 2005). Appellants' representative avers to the

6

contrary. In particular, Maissel *et al.* discloses that information can be obtained over a period of time, and the period of time can be a few minutes, a year, or longer. (*See* col. 12, ll. 26-31). Maissel *et al.* additionally notes that an unlimited amount of time can be used to collect information. (*See* col. 12, ll. 41-43). Also, Maissel *et al.* discloses that old information can be eliminated from a profile or a profile may be reset. (*See* col. 12, ll. 41-45). Thus, Maissel *et al.* does not disclose logging temporal history related to a *plurality of time subintervals*; instead, Maissel *et al.* relates to obtaining information over an interval of time and discarding information from other time intervals. Accordingly, Maissel *et al.* fails to anticipate or suggest such claimed aspects.

Furthermore, Maissel *et al.* fails to anticipate or suggest that the user specific recommendation is generated *based on information ... related* to a *particular* one of the plurality of *time subintervals* as recited in the subject claims. The Advisory Action contends that "Maissel discloses that the viewer preference profile can include information obtained over a period of time on the various program characteristics of programs viewed by a viewer at various times (plurality of time subintervals) and that any length of time can be used (column 12, lines 23-34). Maissel explicitly discloses that the period of time may be as short as a few minutes or as long as a year or more." (*See* Advisory Action dated October 18, 2005). Appellants' representative disagrees with these contentions. As noted above, Maissel *et al.* relates to obtaining information over an interval of time that can be a minute or a year in length. Additionally, Maissel *et al.* discloses discarding information from other time intervals. Maissel *et al.*, however, is silent with regards to utilizing information from one time subinterval out of a time interval (*e.g.*, plurality of time subintervals), where the temporal history related to additional time subintervals is also logged (and not discarded). Thus, Maissel *et al.* does not anticipate or suggest such claimed aspects.

In view of at least the foregoing, it is readily apparent that Maissel *et al.* does not anticipate or suggest the subject invention as recited in independent claims 1 and 18 (and claims 2, 4, 9-17, and 32-34 which respectively depend there from). This rejection should be reversed.

B.   Rejection of Claims 3 and 5 Under 35 U.S.C. §103(a)

Claims 3 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maissel *et al.* (U.S. 6,637,029) and Ferman *et al.* (U.S. 2002/0059584). It is respectfully submitted that this rejection should be reversed for the following reasons. Maissel *et al.* and Ferman *et al.*, individually or in combination, do not teach or suggest each and every element set forth in the subject claims. In particular, Ferman *et al.* does not make up for the aforementioned deficiencies of Maissel *et al.* with respect to independent claim 1 (which claims 3 and 5 depend from). Therefore, the subject invention as recited in claims 3 and 5 is not obvious over the combination of Maissel *et al.* and Ferman *et al.* Thus, it is respectfully submitted that this rejection be reversed.

C.   Rejection of Claims 6 and 7 Under 35 U.S.C. §103(a)

Claims 6 and 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Maissel *et al.* (US 6,637,029) and Hopple *et al.* (US 6,519,769). It is respectfully submitted that this rejection should be reversed for the following reasons. Maissel *et al.* and Hopple *et al.*, individually or in combination, do not teach or suggest each and every element set forth in the subject claims. In particular, Hopple *et al.* does not make up for the aforementioned deficiencies of Maissel *et al.* with respect to independent claim 1 (which claims 6 and 7 depend from). Therefore, the subject invention as recited in claims 6 and 7 is not obvious over the combination of Maissel *et al.* and Hopple *et al.* Thus, it is respectfully submitted that this rejection be reversed.

09/825,820   MS150904.01/MSFTP161US

D.   Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 1-7, 9-18, and 32-34 be reversed.

If any additional fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Respectfully submitted,
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9

VIII.   Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))

1.   A system for ranking items in a selectable information list received from an
information delivery system, comprising:

    a database system that logs selections of information viewed by a user of the
information delivery system and logs temporal history related to a plurality of time
subintervals that correspond to the viewing of the selected information; and

    a collaborative filtering system that employs the logged temporal history and
disparate logged temporal history from a plurality of disparate database systems to
generate a recommendation specific to the user based at least in part on information
obtained from a plurality of users related to a particular one of the plurality of time
subintervals.

2.   The system of claim 1, a selection is logged if the selection is viewed for a dwell
time that exceeds a predetermined threshold.

3.   The system of claim 2, the collaborative filtering system assigns a positive vote to
logged selections that are viewed for a dwell time that exceeds a predetermined threshold.

4.   The system of claim 1, a selection is logged if the selection is briefly viewed and
jumped away to another selection.

5.   The system of claim 4, the collaborative filtering system assigns a negative vote
to logged selections that are viewed briefly and jumped away to another selection.

6.   The system of claim 1, the viewed information is time stamped by event type and
the collaborative filtering system is based on a single collaborative filtering model that is
trained according to time intervals that the information has been viewed.

10

7.   The system of claim 1, the collaborative filtering system is based on a plurality of

separate collaborative filtering models, each collaborative filtering model is trained with

the information from a particular time interval of temporal history that has been viewed.

8.   (Cancelled).

9.   The system of claim 1, the collaborative filtering system provides in real-time a

selectable recommendation list ordered by estimated degree of preference that a user has

for each item.

10.   The system of claim 9, the collaborative filtering system receives attributes of at

least one user of the system and utilizes these attributes in providing the selectable

recommendation list.

11.   The system of claim 10, the collaborative filtering system receives attributes of

other systems and utilizes these attributes in providing a globally ranked recommendation

list to a cluster of systems based on the temporal viewing history of the systems of the

cluster.

12.   The system of claim 9, the collaborative filtering system receives a previously

viewed item list that has been filtered by a filtering system and generates a new

recommendation according to the preferences provided by the filtered previously viewed

item list.

13.   The system of claim 12, the filtering system comprising at least one of a live show

selection filter, a time period filter and a popularity filter, a pattern search engine and an

adding items of interest and update component.

14.   The system of claim 1, further comprising a user interface that allows a user to

provide at least one filter to a reviewed items list.

11

15.   The system of claim 14, the user interface allows a user to request a time period for reviewing information from the selectable recommendation list wherein the collaborative filtering system supplies the selections for the time period requested based on the temporal history of selections within a similar time interval covering the time period.

16.   The system of claim 14, the user interface receives a reviewed items list, allows a user to modify the reviewed items list, and inputs the modified reviewed items list as updated preferences into the collaborative filtering system, such that a new recommendation list can be generated based on the updated preferences.

17.   The system of claim 1, the information being multimedia.

18.   A multimedia system that ranks programs in an electronic program guide list received from a program delivery system, comprising;
       a database system that logs selections of programs viewed by a user utilizing a program delivery system and logs temporal history that includes a plurality of time subintervals that correspond to the viewing of the selected programs; and
       a collaborative filtering system that employs the logged temporal history from the database system and different logged temporal history from a plurality of database systems associated with disparate users to produce a user specific recommendation based at least in part on information associated with a plurality of users related to a particular one of the plurality of time subintervals.

19-31. (Cancelled).

32.   The system of claim 18, the multimedia system residing on a remote server coupled to at least one set top box wherein recommendations are generated by the server and transmitted to the set top box.

33.   The system of claim 32, the set top box having an electronic program guide system that receives and displays the recommendations to a user.

34.   The system of claim 32, the remote server further comprising a global inference system that groups multimedia systems into clusters and a set of general recommendations for members of at least one cluster based on the temporal viewing habits of members of the cluster.

35-52. (Cancelled).

IX.   **Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))**

None.

X.   **Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))**

None.

13